

**EMERGENCY WARNINGS
FOR
PEOPLE WITH DISABILITIES**

**Accessible Emergency Notification and
Communication: State of the Science Conference**

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EMERGENCY WARNINGS FOR PEOPLE WITH DISABILITIES

The material provided in this document is intended as general information on how NOAA Weather Radio (NWR) can be used as an alerting tool for people with disabilities. This is not intended to be an all inclusive listing of how the system can be used, what products are available, or an endorsement of any product listed herein.

In several cases there are complete off-the-shelf NWR receiver systems available that will perform the required alerting function as they come from the box. In some cases, where a home alerting system is already in place, the NWR receiver can be connected to the existing alerting system, much the same as a door bell, smoke detector, or other sensor. In other cases, persons with some electronics skills can purchase the NWR receiver and other components and assemble them into a system designed to meet their own special needs.

In simple systems, alarm devices can be directly connected (hardwired) to the output of the NWR receiver. In more complex installations, using wireless and wired remote modules, connections are made through devices that allow more remote and versatile placement of alarms. Alarms may require external power from batteries or modular power supplies. Care should be taken that the complete alerting system works when commercial power has failed. See the block diagram for system layouts.

The NOAA National Weather Service (NWS) does not guarantee the proper operation of any of the equipment or system listed herein and is not liable for any damages as a result of non-receipt of alarms, alerts, or warnings from these systems. Inclusion of a product in this document does not imply endorsement by the NWS.

Some general questions and answers regarding use of NWR by people with disabilities follow.

QUESTION:

Why should I be interested in NOAA Weather Radio (NWR)?

ANSWER:

Warnings provided by NWR can save your life during periods of local severe weather or other hazard conditions

QUESTION:

What good are NWR broadcasts to people with disabilities?

ANSWER:

The voice broadcast of NWR is of no value to people who are deaf and of little value to people who are hard of hearing - very little of the audio information broadcast can be understood by individuals with moderate to severe hearing loss. It can, however, be extremely useful to hearing people.

The visual information provided by NWR receivers is of no value to people who are blind and of limited use to people with low vision. It can, however, be extremely useful to deaf or hard of hearing people.

In addition, however, other non-verbal and non-visual information is imbedded in these broadcasts that is accessible and useful to everyone and that can provide timely, critical warnings of life threatening events to everyone.

The National Weather Service (NWS) uses something called Specific Area Message Encoding (SAME) technology to send warnings of imminent severe weather or other hazard conditions from any of 122 Weather Forecast Offices directly into homes, offices, public buildings, churches, hospitals, nursing homes, and to many other locations using the national NWR network of over 930 transmitting stations. At least 97% of the American population is covered by NWR and NWS is working toward a coverage level of 95% in every State.

Special NWR SAME radio receivers can be programmed to set off an alarm for specific events (tornado, flash flood, etc.) and specific locations (your county) of interest to you, the “listener.” Some receivers are also equipped with special output connectors that activate alerting devices - bed shakers, pillow vibrators, sirens, and strobe lights or other alerting systems useful to people with disabilities.

Those who use hearing aides or cochlear implants equipped with telecoils may also be able to use “loop” technology to listen to NWR broadcasts. Many receivers are equipped with external output connectors that will accept a “neckloop.” The “neckloop” creates an electromagnetic field that couples the NWR receiver to the telecoil in the hearing aid or cochlear implant, allowing the user to hear the broadcast. FM, infrared, and loop based Assistive Listening Devices (ALD) can also be used.

Those with vision related disabilities can use the audible alarms and voice broadcasts to get details on the type and location of the hazardous situation.

QUESTION:

How does it work?

ANSWER:

Forecasters at your local NWS Weather Forecast Office decide that a severe weather event is occurring or about to occur, or local authorities determine that a hazardous event (nuclear power plant problem, a chemical or biological accident, etc.) has occurred and is a threat to the local populace. The information is immediately input into a computer at the local Weather Forecast Office and immediately broadcast by NWR transmitters that cover the areas at risk. Digital codes are added to each broadcast identifying the event (tornado, flash flood, local civil emergency, etc) and the location (Montgomery, Prince Georges, and Anne Arundel Counties). When the Warning is received by an NWR SAME receiver, the receiver turns itself on, sounds an alarm, activates a warning light, writes a short message (TORNADO) on the display, activates any external devices (strobe lights, sirens, vibrators, etc.) connected to the receiver, and provides an audio output of the emergency message.

QUESTION:

What should I do when I receive a Warning from NWR SAME?

ANSWER:

If the Warning is for a Tornado, Flash Flood, or other immediate threat, you should immediately take steps to protect yourself. Every household should have an emergency plan in place that includes pre-established actions that need to be taken to lessen the likelihood of injury or death from a variety of possible events. These may include moving to the basement, a special safe room, or lower, interior levels of your home during a tornado or evacuating to higher ground along a pre-established, safe route during a flash flood. Household emergency plans can be developed with assistance from your local, county, or state emergency management office. The Federal Emergency Management Agency (FEMA) published a handbook, “Are You Ready? A Guide to Citizen Preparedness,” (FEMA Publication # H-34) that provides details on emergencies and creating emergency actions plans. This and other related publications are available from FEMA at www.fema.gov/library, by calling 1-800-480-2520, or by writing to FEMA, P.O. Box 2012, Jessup, MD 20794-2012.

QUESTION:

Where can I get additional information about the event that caused the Warning to be issued?

ANSWER:

The NWR SAME Warning message broadcast you receive also triggers the Emergency Alert System broadcasts at your local radio and television stations. The message is also immediately available on the Internet at sites accessible from the NWS Home Page at www.weather.gov or www.noaa.nws.gov. Either or both of these sources of text information can be monitored to get additional information,

if you can do so without putting yourself at risk. There are also numerous sources of emergency information supplied by Email by various commercial telecommunication service providers on cell phones, pagers, and other personal digital devices, however these may not be as timely as NWS services.

QUESTION:

Where can I get the necessary equipment and what does it cost?

ANSWER:

NWR SAME receivers with features useful to people with disabilities, such as an output to activate external devices and battery back-up power are manufactured and/or sold by several companies, including Radio Shack, Midland, Recom, Homesafe, and First Alert. Connecting some of them to external alarm devices requires knowledge of electronics and some electronic technician skills for proper installation. However, there are systems that have been assembled, tested, packaged, and marketed by Silent Call, Harris Communications, Compu-TTY, and Homesafe that are simple to install and use. The cost of a basic NWR SAME receiver is \$50 to \$90. Systems packaged with external alarm devices start at \$100.

The Consumer Electronics Association (CEA) and NOAA collaborated on the development of an industry standard and a certification program for Public Alert (NWR capable) electronic devices that include displays and external alarms useful to deaf and hard of hearing people. Purchasing a Public Alert certified NOAA Weather Radio assures that you are getting a high quality receiver, however, you still need to make sure it works for you and that it is able to activate any external alarms you want to use.

QUESTION:

What should I do if I'm interested in using NWR to get warnings of life threatening weather or other hazards.

ANSWER:

Satisfy yourself that your area is vulnerable to weather or hazard conditions that warrant an expenditure for an alarm system. The National Weather Service believes that NWR receivers should be as common as smoke detectors. Visit NWS web sites at www.nws.noaa.gov/nwr or www.weather.gov to learn more about NWS and NWR and to determine if the area in which you live is covered by NWR. These web sites have very specific information, including coverage maps, state and county listings, and codes needed to program receivers.

QUESTION:

Where can I buy an NWR receiver and accessories for people with disabilities?

ANSWER:

Contact one of the vendors listed below. Purchase an NWR receiver or system only with the understanding that if it does not work in your area that it can be returned for a full refund.

Vendors of NWR receivers packaged for people with disabilities:

Harris Communications - 800-825-6758 - www.harriscomm.com
(Search on Weather)

Homesafe, Inc. - 800-607-6737 - www.homesafeinc.com
(Click on SAME TECH ALERT and SPECIAL NEEDS)

Silent Call - 800-572-5227 - www.silent-call.com
(Download catalog, page 12-14)

Compu-TTY - 817-738-2485 or 1970 (TTY) - www.computty.com

QUESTION:

Is anything being done to improve the delivery of warnings of life threatening events to people with disabilities?

ANSWER:

Yes, there are currently efforts under way that will have a direct impact on warning systems to serve people with disabilities.

The NWS has the capability to collect and broadcast All-Hazard warnings from all authorized warning sources. It is currently automating this process to allow local, state and national emergency managers quick, electronic access to the NWR broadcasts for non-weather events such as Homeland Security Alerts, Amber missing child alerts, local toxic spills or chemical fires, etc.

The NWR has tested a system that will broadcast the complete text of warning messages to special NWR receivers with LCD displays. If implemented, this will supply complete text information (like captioning) on special NWR receivers.

RCA developed a flat screen AlertGuard television with a built-in NWR receiver. Programs being viewed are interrupted by warnings, whether cable, broadcast, VCR, DVD or video games are being used. Programmable alarms (front panel lights, siren, and a screen display that overrides captioning) are activated when a pre-selected warning for a specific area is received. Other companies are interested in using this technology.

The NOAA Weather Wire Service (NWWS) delivers text warning messages via Email. This provides Email access to any service provider with devices (pager, cell phone, PDA, PC) capable of delivering text Email. Messages can be selected by event type (tornado, flash flood, etc.) and issuing office (Washington, DC, New York City, etc.) and forwarded to supplement NWR SAME warnings.

NOAA and the Consumer Electronics Association developed a standard (CEA-2009) and a certification program (Public Alert) based on NWR SAME technology. Most Public Alert certified devices are able to provide an alarm output that can drive devices to warn the people with disabilities. Public Alert certified devices are currently available from a number of manufacturers.

NOAA NWS has initiated a Weather Radio Improvement Program that includes text broadcasts, greatly improving access for people who are deaf or hard of hearing.

The United States Congress has pending legislation for a National Alert System.

All of these innovations have direct, significant application to emergency warning improvement for people with disabilities.

NWR Alerting Equipment

NWR Receivers with NWR SAME and an Alarm Output

Special Receivers that can tune to NWR frequencies and trigger an auxiliary output on the basis of a received "All Hazards" warning from the NWS for a specific event in a specific state and county.

Radio Shack Model 249	Homesafe 2000HS*	Midland WR-300
Radio Shack Model 250	Homesafe 2005	Midland R-300
Silent Call WX-67*	Midland WR-30	Radio Shack Model 258
First Alert WX-67*	Midland WR-100	Radio Shack Model 261
First Alert WX-167	Midland 74-200	Reecom R1630 & R1650
First Alert WX-268		

Power Module Interface or Signaler

Converts the output of the NWR SAME receiver into a signal that is carried by electrical wiring in the home or by means of a wireless transmission that can be received anywhere in the home.

Radio Shack (X-10 Powerhouse Modules)	Alertmaster AM-AX, AM-DX
Sonic Alert DS 700	Silent Call X67T*
Silent Call SC-DOT1003-2	Compu-TTY KA300TX

Remote Modules or Receiver

Receives the signal from a Power Interface or Signaler and converts it into something that can activate an internal or external alarm.

Radio Shack (X-10 Powerhouse Modules)	Alertmaster AM-RX2
Sonic Alert SA 201 & 101	Compu-TTY KA300RX
Silent Call SC-REC09214, SC- REC1001-N	

Alarm Devices

Converts the alarm signal into visual, audio, or mechanical form that is more easily sensed by a person with a hearing disability. (Some of these do not meet Americans with Disabilities Act requirements, but may be useful in special circumstances.)

Strobe Light

Radio Shack 49-527	Homesafe Kit*
Harris HAL-2737	First Alert WX-TRS*
Harris DATA-1005	Reecom R1603
Silent Call WX-TRS*	Midland 18-STR

Siren

Radio Shack 49-490 or 49-488

Bed /Pillow Shaker

Harris SA-SS120V, SS-SS12V , NFS-BV6670
Silent Call X67-V*, Homesafe Kit*

Appliance module

Radio Shack (X-10 Powerhouse Modules)

*Can be purchased as a system with external alarms (bad shaker, strobe, siren, etc.).

Items in bold type are Public Alert Certified. Items in bold italics are out of production, but still may be available.

The above are available from the sources listed below:

Radio Shack - See local store

Harris Communications 1-800-825-6758*

NFSS Communications 1-888-589-6670

Potomac Technology 1-800-433-2838*

Wireless Marketing 1-847-839-0015

Homesafe, Inc. 1-800-607-6737*

Midland Consumer Radio 1-800-241-8500

Silent Call 1-800-572-5227*

Compu-TTY 1-817-738-2485 or 1970 (TTY)*

Sima Products 1-800-345-7462*

* Vendors of Silent Call, Homesafe, Compu-TTY, and First Alert packaged systems for the deaf and hard of hearing.

Websites for Weather Radios:

<http://www.totaltrak.com>

<http://www.weather4sure.com>

www.computty.com*

www.noaaweatherradiostore.com *

www.homesafeinc.com *

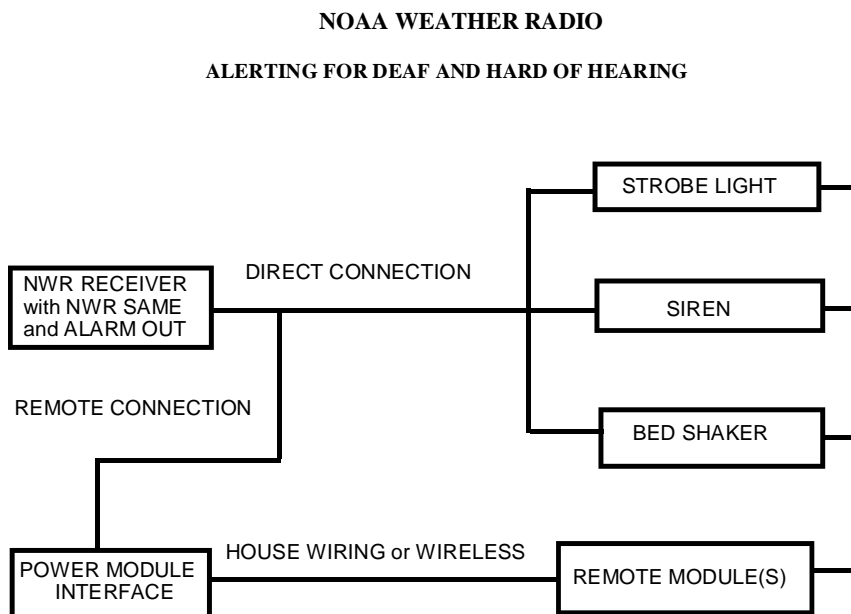
www.weatherconnection.com

www.radioshack.com

www.midlandradio.com

www.silentcall.com*

www.simacorp.com*



The National Weather Service does not guarantee the proper operation of any of the equipment or systems listed herein and is not liable for any damages as a result of non-receipt of alarms, alerts, or warnings from these systems. Inclusion of a product in this document does not imply endorsement by the NWS.

